The PlanAlyzer Cases for Teaching Clinical Reasoning: A Demonstration of the Cases, Discussion of the Research & Development Process, Lessons Learned and Strategies for Introducing Computer-based Programs into Medical School Courses as a Vehicle for Curriculum Reform

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Over the past 7 years, we have developed, tested, and evaluated in carefully controlled randomized studies in a medical school curriculum, case-based, self-paced computer-based programs designed to teach clinical reasoning and medical problem solving called the PlanAlyzer Programs. The PlanAlyzer cases for teaching anemia and chest pain diagnosis have become a standard part of the 2nd year curriculum in Cardiology and Hematology for all students at Dartmouth Medical School (DMS) and are being used at other institutions as well. Cognitive studies are being done in Germany to determine learner models students create to interact with the PlanAlyzer cases leading to better understanding of the process of medical problem solving from a student perspective.[1] The findings of the PlanAlyzer research have been reported at SCAMC meetings and published in the medical education and information science literature over the past 7 years.[2,3,4,5,6,7,8] The PlanAlyzer case-based learning was found to be efficient, saving both significant faculty teaching and preparation time and student learning time: a) The 29 anemia and chest pain cases were able to replace 96 faculty hours of traditional instruction with no loss in student proficiency; b) students in the experimental groups using the computer-based cases were able to master the clinical reasoning process in the diagnosis of these two content areas in 43% less time than those in the control groups using traditional text-based cases. Also, the computer-based programs are popular with both students and faculty. A competent critic of CAI research states: "...the PlanAlzyer ... evaluation design used is one of the very few published examples of a thorough and highly professional attempt to avoid the confounding that has plagued similar studies in the past."[9] This theater-style presentation will offer a discussion of: the context for case-based teaching of medical problem-solving; the development and research evaluation of PlanAlyzer; demonstrations of anemia and chest pain PlanAlyzer cases; lessons learned; strategies for the non-trivial task of introducing such programs into the curriculum as a vehicle for making it more interactive; and future directions including cognitive studies in Europe, and linkage to a comprehensive theoretical program of medical problem solving called Maccord.

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0195-4210/92/$5.00